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10/615,674	07/08/2003	Masaaki Kuranuki	10873.1257US01	9824

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EXAMINER
CHOW, CHARLES CHIANG

ART UNIT	PAPER NUMBER
2685	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/615,674	KURANUKI ET AL.	
	Examiner	Art Unit	
	Charles Chow	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-3, 4, 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Tomiyori (US 6,119,023).

Regarding **claim 1**, Tomiyori teaches battery-driven electronic equipment [cellular telephone in Fig. 1, abstract] comprising a battery [1];

a first load [power amplifier 12] that is driven by the battery 1 and subjected to time division [the time division of signal 40 for power amplifier 12 from power controller 23, col. 3, liens 51-57; col. 3, lines 5-13]

a second load [backlight 8] that is driven by the battery 1, capable of being operated during an interval between periods in which the first load is subjected to the time division [the supplying power to second load 8 in an interval where powering time division for the first load is OFF, col. 3, lines 14-27]; and

a control portion [23, 24, logic 15, switch 13, 14] for controlling the first load 12 and the second load 8 so that a first driving period in which the first load is driven by the battery and a second driving period in which the second load is driven by the battery do not overlap each other [the second period, for load 8, at the output of inverter 15a which is inverted, not overlapping, opposite to the first period 40 at the input of the inverter 15a for first load 12, col. 3, line 14-27].

Regarding **claim 2,** Tomiyori teaches the battery driven equipment [cellular phone], wherein the first load is required to be subjected to a real-time operation [the first load 8 power amplifier is required to be a real time operation to transmitting TDMA burst signal in col. 3, lines 5-13] and the second load is not required to be subjected to the real-time operation [the backlight 8 is not subject to a real time operation for illuminating screen].

Regarding **claim 3,** Tomiyori teaches the battery-driven electronic equipment [cellular phone] wherein the first load is a power amplifier 12 for sending radio waves in accordance with a time division multiplex system [TDMA in col. 3, lines 8-13].

Regarding **claim 4,** Tomiyori teaches the battery-driven electronic equipment [cellular telephone] wherein the first load has a fixed frequency and a fixed duty ratio for performing the time division [the waveform of signal 40 for the first load 8 has fixed frequency and duty ratio, as shown in waveform (A) in Fig. 2, col. 3, lines 59-65].

Regarding **claim 6,** Tomiyori teaches the battery-driven electronic equipment wherein the second load is a backlight 12 provided for illuminating a display screen.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Motohashi (US 6,275,715 B1).

Regarding **claim 5,** Tomiyori fails to teach the wherein the first load is a CPU for scheduling a load. Motohashi teaches these features [the restricting supplying power to first load CPU, microprocessor 106 of data processing section 11, during transmission, abstract, Fig. 1, the microprocessor schedules loading by selecting lower frequency clock, col. 3, lines 25-44], in order to save battery power from the power consumption in data processing section, microprocessor 106. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori with Notohashi's restricted power to microprocessor, in order to save battery power.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Niratsuke at al. (US 5,606,740).

Regarding **claim 7,** Tomiyori teaches control signal 40 to on/off first load 12, and an inverter 15a for inverting the first control signal 40 generated by the controller 23 so as to generate a second control signal [output of 15b] for on/off control of the second load 8. Tomiyori fails to teach the oscillator. Niratsuke et al. teaches the wherein the control portion comprises an oscillator for generating a control signal for on/off control of a load [the timing generator 22 in Fig. 7, to switch a load, radio reception 24A via SW21, col. 10, lines 14-45], in order to extend the battery operating life [col. 3, lines 25-25-29], by separately powering 23, 24 at different time. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori with Niratsuke's timing generator 22, in order to separately powering 23, 24, to extending the battery operating life.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Kuroiwa (US 2001/0004,594 A1).

Regarding **claim 8,** Tomiyori fails to teach the wherein the control portion comprises a large-scale integrated circuit (LSI). Kuroiwa teaches these features [the iwerless LAN communication LSI [Fig. 9], the LSI power controlling means 8 shutts off power supply to roaming processing 4 when timer 9 is expired, paragraph 0053], in order to save space for implementing the power conservation [paragraph 0007]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori with Kuroiwa's LSI power control means 8, in order to save space for implementing the power conservation.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Fishman et al. (US 5,523,631).

Regarding **claim 9,** Tomiyori fails to teach the dead time. Fishman et al. (Fishman) teaches the wherein the control portion includes a dead time setting unit for providing a dead time in accordance with a rise time and a fall time of first and second driving currents for driving the first and second loads at a shift time between the first driving period for driving the first load and the second driving period for driving the second load [the dead time setting according to the overshoot/undershoot in Fig. 2(b), Fig. 6, by processor 26 in Fig. 3; for the power delivery to multiple load, abstract, with the shift time, delay, for the supplying of power to each load at different period in Fig. 4], in order to avoid the power fluctuation at load. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori with Fishman's adjustable delay for dead time, in order to avoid the power fluctuation at load.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Terashima et al. (US 5,970,419).

Regarding **claim 10,** Tomiyori teaches the battery-driven electronic equipment [cellular telephone in Fig. 1], comprising a battery 1;

a first load 12 driven with a first driving current that is changed with the passage of time [the driven current via transistors in 13a for the passage time in 40];

a second load 8 capable of being operated during a period excluding a period T in which the first driving current [during a period to drive second load 8 when the first driving period T, 40, is OFF due to inverter 15a],

Tomiyori fails to teach the period excluding a period T which the first driving current becomes maximum. Terashima et al. (Terashima) teaches these features [the shut off backlight during transmit time slot, abstract, & the power consumption is greatest during transmit, col. 2, lines 25-29; the battery voltage drop due to current flow in lighting during transmit, col. 3, lines 36-41],

a control portion [lighting control 40] for controlling a load amount of the second load [the controlling of load current to lighting means with the on-off ratio, col. 3, lines 42-52], in accordance with a change in the first driving current with the passage of time so as to decrease a maximum value of a sum of the first driving current supplied from the battery for driving the first load and the second driving current supplied from the battery for driving the second load [the regulating of the lighting period on-off ratio, narrowing, widening, the second lighting period, to decrease the loading amount from lighting means by changing the on-off ratio, to set the off-period for lighting longer, in accordance to the battery low, high, for transmit, col. 3, line 53 to col. 4, line 6, to reduce the maximum total loading current due to first

transmitting current loading and the secondary lighting current loading, by extending the off-period for lighting], in order to avoid battery voltage drop during transmission], in order to avoid battery voltage drop during transmission [abstract].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori with Terashima's changing the lighting loading amount by changing the on-off ratio of the second period for lighting, for reducing battery loading, in order to avoid battery voltage drop during transmission.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Terashima, as applied to claim 10 above, and further in view of Kuroiwa-'594 A1.

Regarding **claim 11,** Tomiyori & Terashima fail to teach the wherein the control portion comprises a large-scale integrated circuit (LSI). Kuroiwa teaches these features [the iwerless LAN communication LSI [Fig. 9], the LSI power controlling means 8 shutts off power supply to roaming processing 4 when timer 9 is expired, paragraph 0053], in order to save space for implementing the power conservation [paragraph 0007]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori & Terashim with Kuroiwa's LSI power control means 8, in order to save space for implementing the power conservation.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Terashima, as applied to claim 10 above, and further in view of Fishman-'631.

Regarding **claim 12,** Tomiyori & Terashima fail to teach the dead time. Fishman et al. (Fishman) teaches the wherein the control portion includes a dead time setting unit for providing a dead time in accordance with a rise time and a fall time of first and second driving currents for driving the first and second loads at a shift time between the first driving period for driving the first load and the second driving period for driving the second load [the dead time setting according to the overshoot/ undershoot in Fig. 2(b), Fig. 6, by processor 26 in Fig. 3; for the power delivery to multiple load, abstract, with the shift time, delay, for the supplying of power to each load at different period in Fig. 4], in order to avoid the power fluctuation at load.. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori & Terashima with Fishman's adjustable delay for dead time, in order to avoid the power fluctuation at load.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyori in view of Niratsuke-'740, and further in view of Kuroiwa-'594A1.

Regarding **claim 13,** Timiyori teaches the controlling [23, 13] of a first load 12 that is driven by a battery 1 and subject to the time division shown on waveform (A) [Fig. 2],

a second load 8 that is driven by the battery 1, capable of being operated during an interval between periods in which the first load is subjected to the time division [the supplying power to second load 8 in an interval where powering time division for the first load is OFF, col. 3, lines 14-27],

an inverter 15a for inverting the first control signal 40 generated by the power control 23 so as to generate a second control signal [output of gate 15b] for ON/OFF control of the second load 8,

wherein the circuit [23, 24, logic 15, switch 13, 14] controls the first load 12 and the second load 8 so that a first driving period in which the first load is driven by the battery and a second driving period in which the second load is driven by the battery do not overlap each other [the second period, for load 8, at the output of inverter 15a which is inverted, not overlapping, opposite to the first period 40 at the input of the inverter 15a for first load 12, col. 3, line 14-27].

Tomiyori teaches a first load 12. Tomiyori fails to teach the oscillator. Niratsuke et al. teaches the an oscillator for generating a first control signal for ON/OFF control of the a load [the timing generator 22 in Fig. 7, to switch a load, radio reception 24A via SW21, col. 10, lines 14-45], in order to extend the battery operating life [col. 3, lines 25-25-29], by separately powering 23, 24 at different time. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori with Niratsuke's timing generator 22, in order to separately powering 23, 24, to extending the battery operating life.

Timiyori & Niratsuke fail to teaches the LSI. Kuriowa teaches a large-scale integrated circuit (LSI) for controlling a load that is driven by a battery and subjected to time division [the Wireless LAN LSI 5C comprises a power controlling means 8 for controlling the load, roaming processing means 4, subjected to a time division, associated with the expiration of time 9 for shutting off the power to the roaming process means 4, paragraph 0053], in order to save space for implementing the power conservation [paragraph 0007]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Tomiyori, Niratsuke, with Kuroiwa's LSI power control means 8, in order to save space for implementing the power conservation.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow

November 7, 2005.

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